

## WHAT IS CLAIMED IS:

1. A recording method for an optical disc having at least three recording layers, the method including

a step of recording and reproducing test data for determining the optimal recording power when user data are recorded in each recording layer, and determining the optimal recording power by evaluating the reproduction results, wherein

when test recording areas are formed by recording the test data, the test recording areas in the odd-numbered recording layers and the test recording areas in which the test data are recorded in the even-numbered recording layers do not overlap in the thickness direction of the optical disc, the test recording areas in the odd-numbered recording layers are mutually aligned in the thickness direction, and the test recording layers in the even-numbered recording layers are mutually aligned in the thickness direction.

2. The recording method for an optical disc of claim 1, wherein the test recording areas in the odd-numbered recording layers and the test recording areas in the even-numbered recording layers are both formed near an innermost circumference of the optical disc.

3. The recording method for an optical disc of claim 1, wherein the test recording areas in the odd-numbered recording layers are formed near one of the innermost circumference and the outermost circumference of the optical disc, and the test recording areas in the even-numbered recording layers are formed near another one of the innermost circumference and the outermost circumference of the optical disc.

4. The recording method for an optical disc of claim 1, wherein the test recording areas in the odd-numbered recording layers and the test recording areas in the even-numbered recording layers are both formed near an outermost circumference of the optical disc.

5. The recording method for an optical disc of claim 1, wherein the test recording areas are formed in positions facing a reproduce-only area of the optical disc.

6. An optical disc having at least three recording layers, in each of which a test recording area is formed by recording test data for determining the optimal recording power when user data are recorded, wherein

the test recording areas in the odd-numbered recording layers and the test recording areas in which the test data are recorded in the even-numbered recording layers do not overlap in the thickness direction of the optical disc, the test recording areas in the odd-numbered recording layers are mutually aligned in the thickness direction, and the test recording layers in the even-numbered recording layers are mutually aligned in the thickness direction.

7. The optical disc of claim 6, wherein the test recording areas in the odd-numbered recording layers and the test recording areas in the even-numbered recording layers are both formed near an innermost circumference of the optical disc.

8. The optical disc of claim 1, wherein the test recording areas in the odd-numbered recording layers are formed near one of the innermost circumference and the outermost circumference of the optical disc, and the test recording areas in the even-numbered recording layers are formed near

another one of the innermost circumference and the outermost circumference of the optical disc.

9. The optical disc of claim 1, wherein the test recording areas in the odd-numbered recording layers and the test recording areas in the even-numbered recording layers are both formed near an outermost circumference of the optical disc.

10. The optical disc of claim 1, wherein the test recording areas are formed in positions facing a reproduce-only area of the optical disc.

11. An optical disc having at least three recording layers, having a reproduce-only area in each recording layer, a test recording area being formed in each recording layer by recording test data for determining the optimal recording power when user data are recorded, wherein

the reproduce-only areas in the odd-numbered recording layers are formed in positions mutually aligned in the thickness direction, the reproduce-only areas in the even-numbered recording layers are formed in positions mutually aligned in the thickness direction, and at least part of the reproduce-only areas in the odd-numbered recording layers and at least part of the reproduce-only areas in the even-numbered recording layers are formed in positions mutually non-overlapping in the thickness direction of the optical disc.

12. The optical disc of claim 11, wherein recording conditions for the disc are recorded in the reproduce-only areas.

13. The optical disc of claim 11, wherein:

the test recording areas in the even-numbered recording layers are formed in positions facing part of said part, or all of said part, of the reproduce-only areas in the odd-numbered recording layers; and

the test recording areas in the odd-numbered recording layers are formed in positions facing part of said part, or all of said part, of the reproduce-only areas in the even-numbered recording layers.

14. A recording method for an optical disc having a recording layer, including

a step of recording and reproducing test data for determining the optimal recording power when user data are recorded in the recording layer, and determining the optimal recording power by evaluating the reproduction results, wherein

the test data are recorded near both an innermost circumference and an outermost circumference of the recording layer and the optimal recording power is determined for each, and

when the user data are recorded, the optimal recording power determined near the innermost circumference, the optimal recording power determined near the outermost circumference, and the radial position at which the user data are recorded are used to determine the optimal recording power for recording the user data at said position.

15. The recording method for an optical disc of claim 14, wherein the optimal recording power determined by performing processing from the recording of the test data in the test data area near the innermost circumference of the optical disc to the determination of the optimal recording power is used in the recording of user data inward of a predetermined position in the radial direction, and the optimal recording

power determined by performing processing from the recording of the test data in the test data area near the outermost circumference of the optical disc to the determination of the optimal recording power is used in the recording of user data outward of a predetermined position in the radial direction.

16. The recording method for an optical disc of claim 14, wherein the user data are recorded with a recording power obtained by taking a weighted average of the optimal recording power determined by performing processing from the recording of the test data in the test data area near the innermost circumference of the optical disc to the determination of the optimal recording power and the optimal recording power determined by performing processing from the recording of the test data in the test data area near the outermost circumference of the optical disc to the determination of the optimal recording power according to the radial position at which the user data are recorded used as the optimal recording power at that recording position.

17. A recording method for an optical disc, including:  
a first step of recording test data at a plurality of mutually differing recording power values differing in steps of a first predetermined width in a test recording area in a recording layer, reproducing the recorded test data, and evaluating the reproduction results to determine an approximate value of the optimal recording power;

a second step of recording test data at a plurality of mutually differing recording power values in a range near said approximate value of the optimal recording power, differing in steps of a second predetermined width smaller than the first predetermined width, in the test recording area in the recording layer, reproducing the recorded test

data, and evaluating the reproduction results to determine a more precise value of the optimal recording power; and

a third step of recording user data according to the more precise value of the optimal recording power.

18. The recording method for an optical disc of claim 17, wherein

the optical disc has at least a first recording layer and a second recording layer; and

when user data are recorded in the second recording layer after user data have been recorded in the first recording layer,

said first step is performed on the second recording layer before the recording of the user data in the first recording layer ends, and

said second step is performed on the second recording layer after the recording of the user data in the first recording layer ends and before the recording of the user data in the second recording layer begins.

19. A recording method for an optical disc having a plurality of recording layers, the recording method including

a step of recording and reproducing test data in the recording layers, and determining the optimal recording power by evaluating the reproduction results, wherein

the process of determining the optimal recording power by recording and reproducing the test data and evaluating the reproduction results is carried out in the plurality of recording layers before the recording of the user data in the plurality of recording layers.

20. A recording method for an optical disc having first and second recording layers, the recording method including

a step of recording and reproducing test data in the recording layers, and determining the optimal recording power by evaluating the reproduction results, wherein

when user data are recorded in the second recording layer after the recording of the user data in the first recording layer,

the processing from the recording of the test data to the determination of the optimal recording power is performed simultaneously in the first and second recording layers before the recording of the user data in the first recording layer ends, and the optimum recording power is determined for recording in the first and second recording layers;

then the processing from the recording of the test data to the determination of the optimum recording power is performed in the first recording layer to determine a new optimal recording power for the second recording layer;

after the new optimal recording power has been determined, subsequent recording of user data in the first recording layer is carried out using the new optimal recording power; and

recording of the user data in the second recording layer begins at a recording power determined by use of the recording power that was used at the conclusion of the recording of user data in the first recording layer and a ratio between the respective optimal recording powers obtained for the recording layers when the processing from the recording of the test data to the determination of the optimal recording power was carried out simultaneously in the first and second recording layers before.